

WHAT IS CLAIMED IS:

1. A sleeveless permanent magnet rotor subassembly having a longitudinal axis and at least two poles comprising:

an elongated member having an outer surface extending in the direction of said longitudinal axis;

a plurality of permanent magnets extending in the direction of said longitudinal axis, said permanent magnets having sides tapered to a predetermined angle and a bottom surface;

a plurality of rotor poles extending in the direction of said longitudinal axis, said rotor poles having sides tapered to a predetermined angle and a bottom surface, said permanent magnets and rotor poles being positioned adjacent each other in a manner such that the tapered sides of said rotor poles are in contact with the tapered sides of adjacent magnets, the bottom surfaces of said rotor poles and said magnets being substantially in contact with the outer surface of said elongated member; and

a first cap member positioned adjacent a first end of said rotor poles in a manner to retain the rotor poles and the permanent magnets to form an integral subassembly.

2. The subassembly of claim 1 wherein the taper angle of each rotor pole is in the range between approximately 5 to 15 degrees.

3. The subassembly of claim 1 wherein said rotor poles are laminated.

4. The subassembly of claim 1 wherein said rotor poles are formed of solid material.
5. The subassembly of claim 1 wherein said end cap is fastened to said rotor poles.
6. The subassembly of claim 1 wherein said end cap is shrink fitted onto said rotor poles.
7. The subassembly of claim 1 wherein said elongated member is fabricated from non-magnetic material.
8. The subassembly of claim 1 wherein a plurality of clamping rods having first and second ends extend through said rotor poles.
9. The subassembly of claim 8 wherein said first end cap member is secured to said first end of said clamping rods.
10. The subassembly of claim 1 further including a second end cap member positioned adjacent a second end of said rotor poles.
11. The subassembly of claim 10 wherein said second end cap member is secured to said second end of said clamping rods.